IN THE CLAIMS

1. (Currently amended) A semiconductor device manufacturing method comprising:

forming a semiconductor film on a substrate;

~~depositing~~ forming a hydrogen-containing film on said semiconductor film by at least one of a plasma-enhanced chemical vapor deposition and physical vapor deposition; and

irradiating a pulse energy beam to heat said hydrogen-containing film and thereby diffuse hydrogen in said hydrogen-containing film into said semiconductor layer;

further comprising irradiating another pulse energy beam to crystallize or re-crystallize said semiconductor film after the step of forming said semiconductor film on said substrate and before the step of forming said hydrogen-containing film on said semiconductor film, an energy density of said pulse energy beam used for heating said hydrogen-containing film being set lower than an energy density of said another pulse energy beam being used to crystallize or re-crystallize said semiconductor film.

2. (Canceled)

3. (Previously presented) The semiconductor device manufacturing method according to claim 1 wherein said pulse energy beam is a laser beam, an electron beam or an ion beam.

4. (Canceled)

5. (Previously presented) The semiconductor device manufacturing method according to claim 1 wherein said substrate is a plastic substrate selected from the group consisting of polyether sulfone, polyethylene terephthalate, polymethyl methacrylate and polycarbonate.

6. (Previously presented) The semiconductor device manufacturing method according to claim 1 wherein said semiconductor film is a polycrystalline silicon film, amorphous silicon film or single-crystal silicon film.

7. (Previously presented) The semiconductor device manufacturing method according to claim 1 wherein said hydrogen-containing film is a silicon nitride film containing hydrogen, an amorphous silicon film containing hydrogen, or a multi-layered film of these films.

8. (Previously presented) The semiconductor device manufacturing method according to claim 1 further comprising the step of forming a film for absorbing said pulse energy beam on said hydrogen-containing film after the step of forming said hydrogen-containing on said semiconductor film and after the step of irradiating said pulse energy beam to heat said hydrogen-containing film, said hydrogen-containing film being heated by irradiating said pulse energy beam and thereby heating said film for absorbing said pulse energy beam.

9. (Previously presented) The semiconductor device manufacturing method according to claim 8 wherein said film for absorbing said pulse energy beam is a metal film selected from the group consisting of molybdenum, tantalum and tungsten.

10. (Previously presented) The semiconductor device manufacturing method according to claim 8 wherein said film for absorbing said pulse energy beam is a semiconductor film made of silicon.

11. (Previously presented) The semiconductor device manufacturing method according to claim 1 wherein said semiconductor device is a thin-film transistor using

said semiconductor film as an active region thereof.

12. (Previously presented) The semiconductor device manufacturing method of ~~Claim~~claim 1 wherein energy density, number of pulses and pulse width of said pulse energy beam are determined not to melt said semiconductor film.